Understanding Real-Time Particle Pollution Data and Maps

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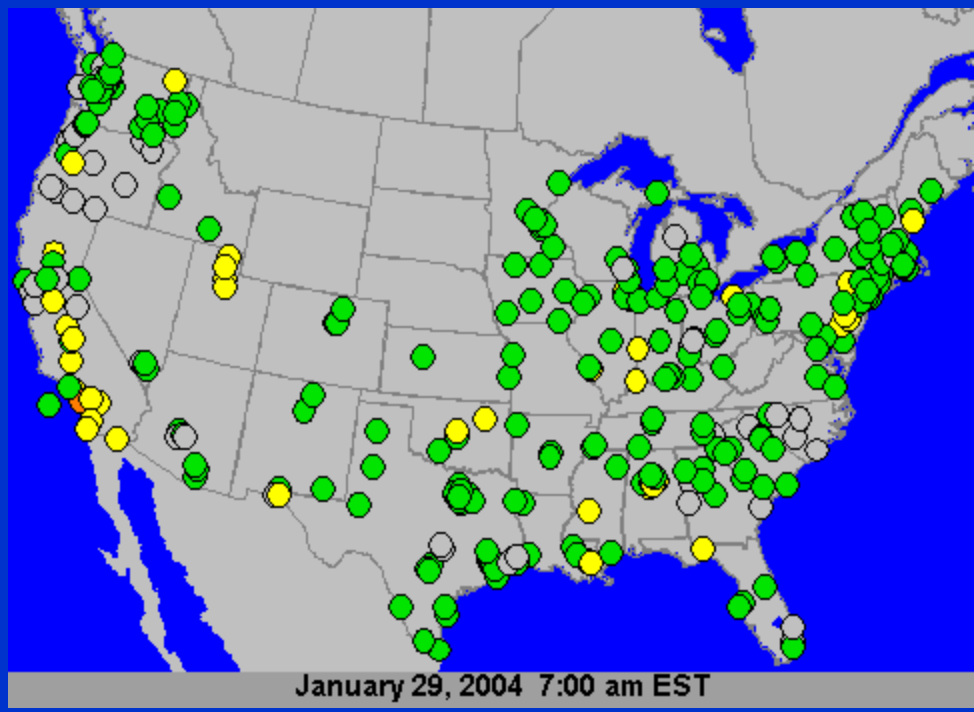
How do you explain Particle Pollution to the media and public?

- New title
- Year round pollutant
-
  - _____
  - _____
  - _____
- health risks
-

What are the current HOURLY average maps telling us?

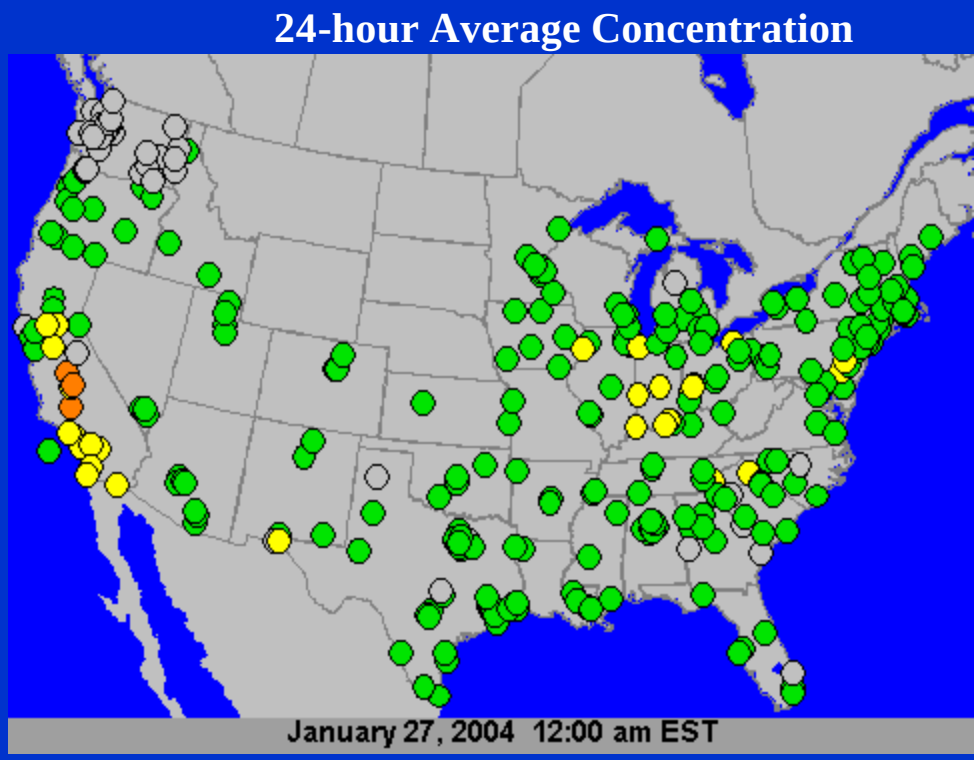
- Computed “24hr” average using surrogate model
  - Conroy method
- Valuable to public
- Tries to predict trends
- Influenced by local effects?
- Best until a shorter term AQI can be developed

Current Hour - Particle Pollution (PM2.5)



What is the rolling 24 hour map telling us?

- Still uses a surrogate model
- More complete/real
- Better on long term local effects/may miss short term effects
- More “true” to the color code



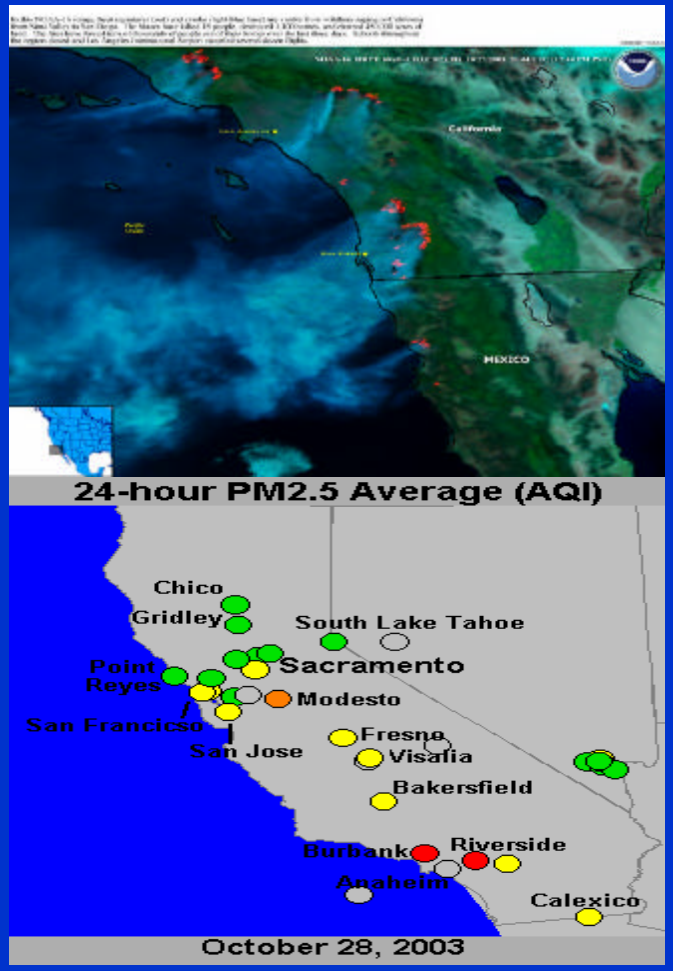
FRM vs. TEOM/BAM
What does it mean?

- Compliance Method
- FRM considered the “true” value
- Values very similar to continuous monitors in parts of the country
- Values NOT similar to continuous monitors in other parts of the country
- Takes weeks to process the data

- Continuous/Real time Method
- Correction factors used to make the values FRM like
  - big issue in parts of the country
- Less coverage
- Best method we have for real time data

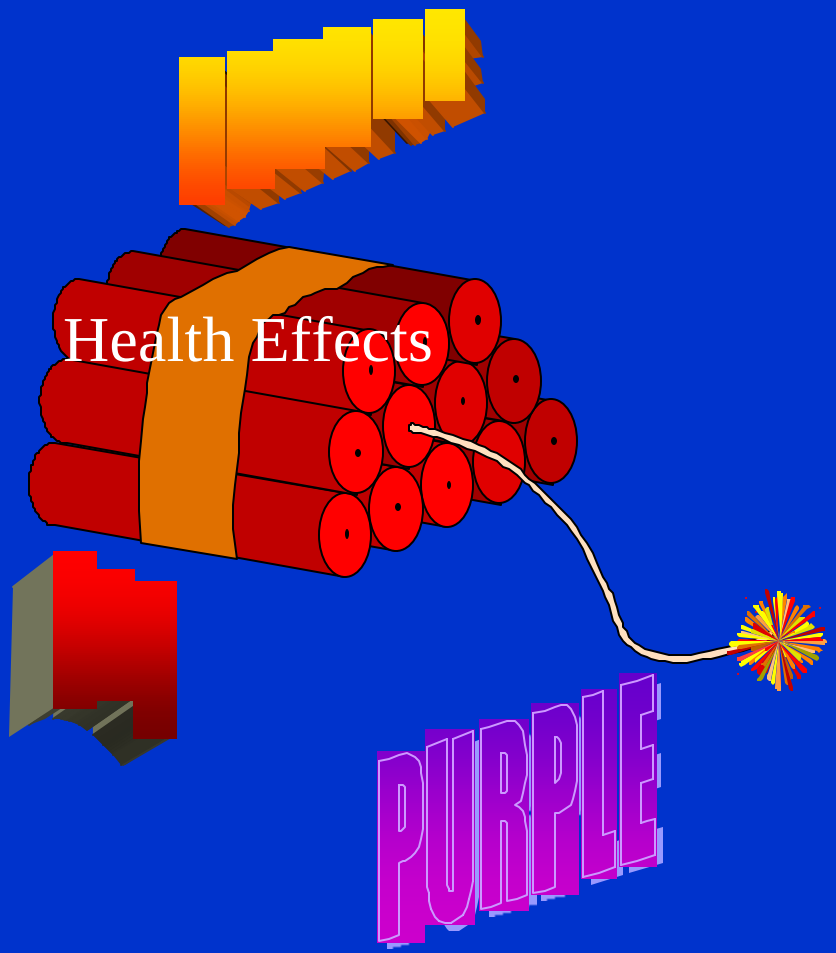
Local Effects?

- Inversions
  - More prevalent during winter
  - example: Salt Lake City
- Special events
  - ex. California fires 2003
  - dust storms
- Interstates
- Strange data
- Suspect data



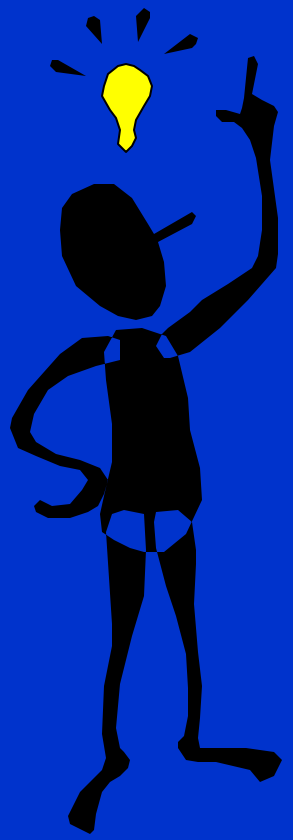
Should we take health action now?

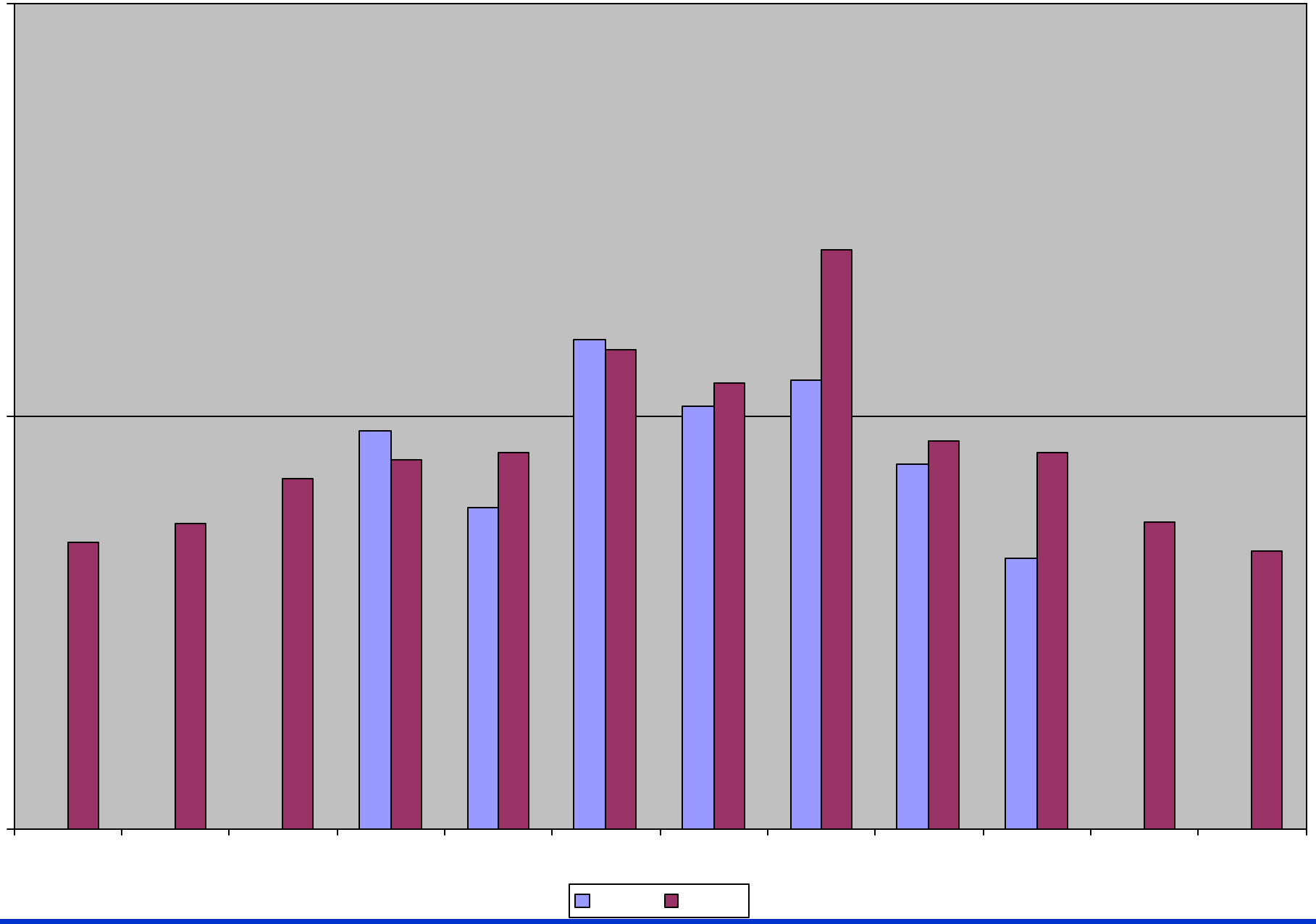
- If needed…YES
- Based on statistics, the 1hr and rolling 24hr maps are accurate for the given time
- Keep up with the “trends”

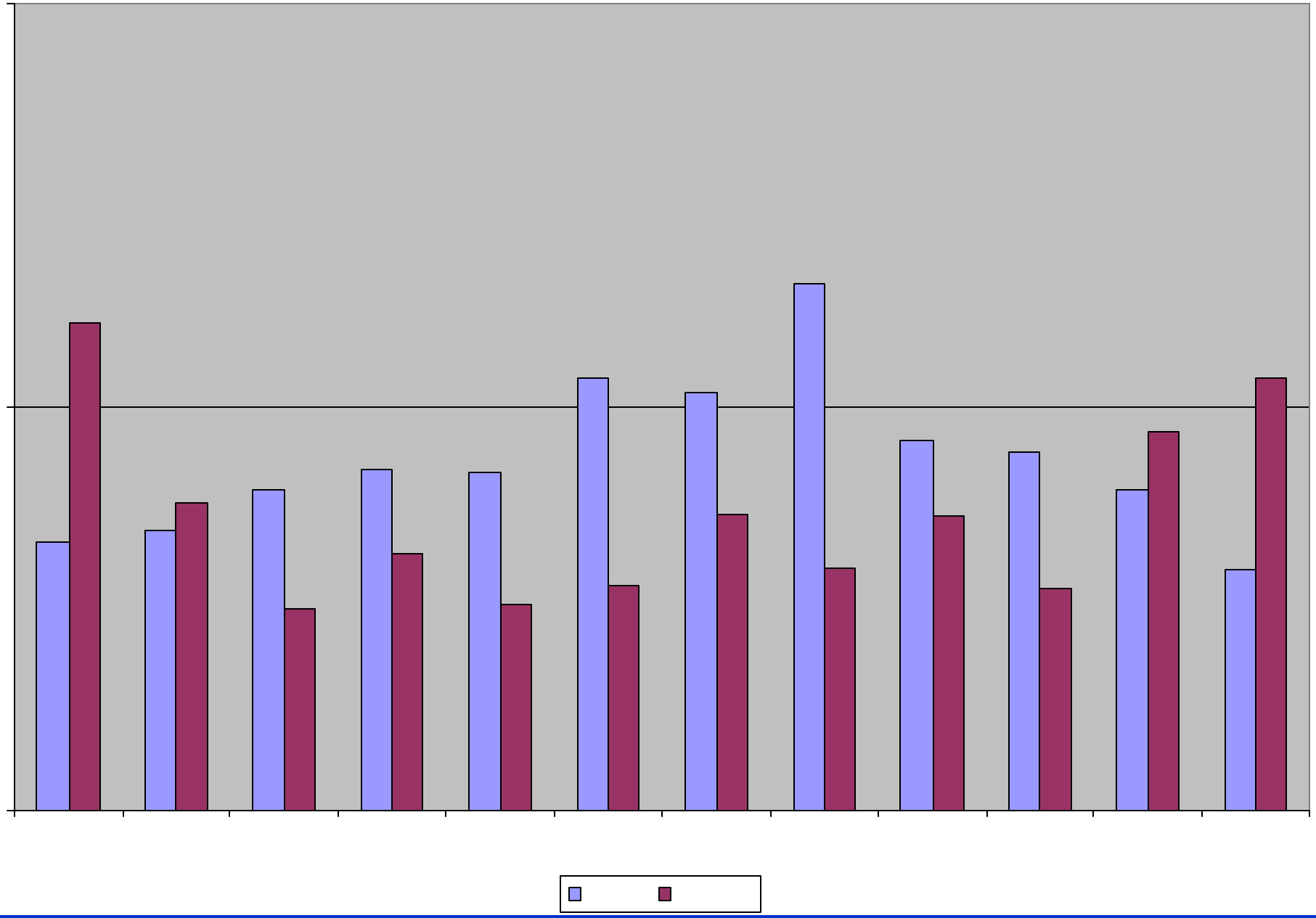


Knowledge is the Key

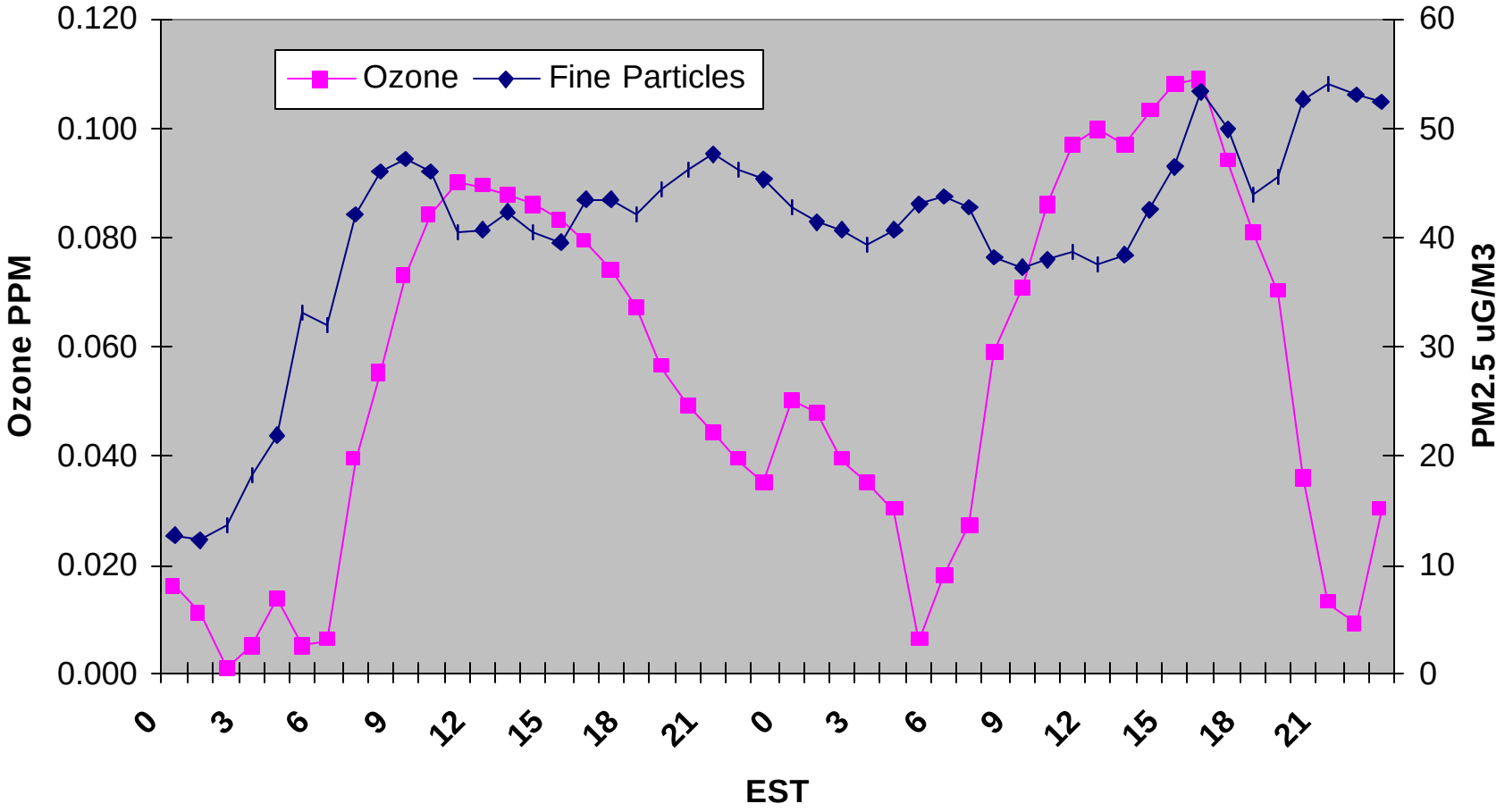
- Know your network
  - monitor locations
    - FRM vs Continuous
    - Correction factors?
  - Seasonal variations
  - Local effects
- Know the forecast

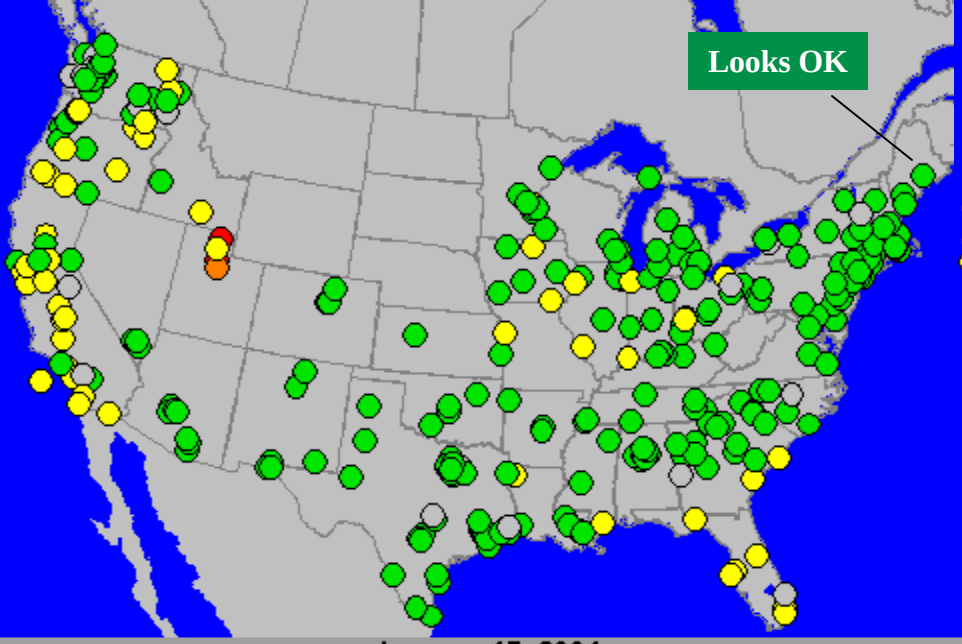




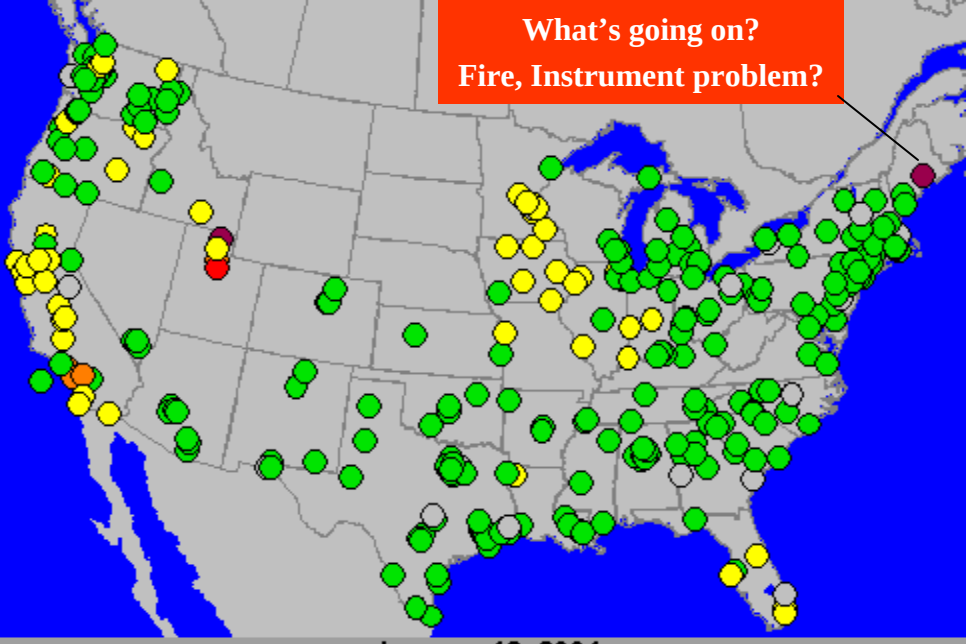


Daily Air Quality Cycle
7/16-7/17/02

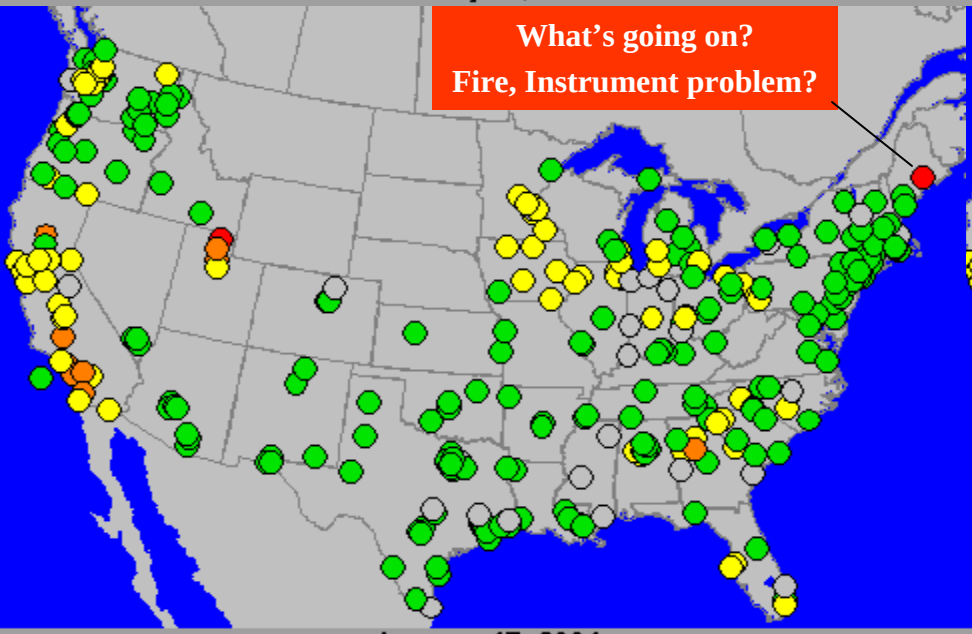




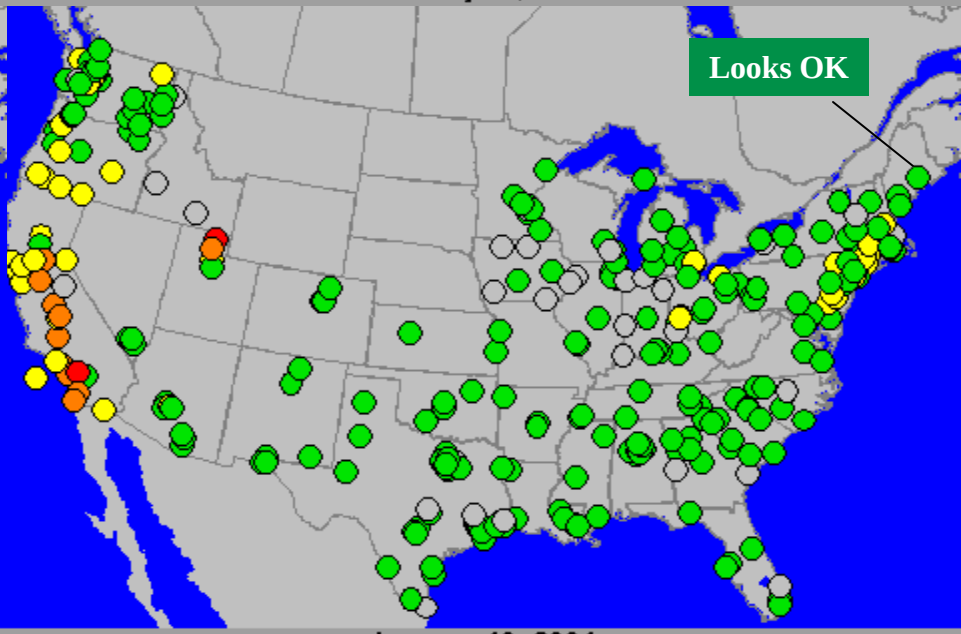
January 15, 2004



January 16, 2004

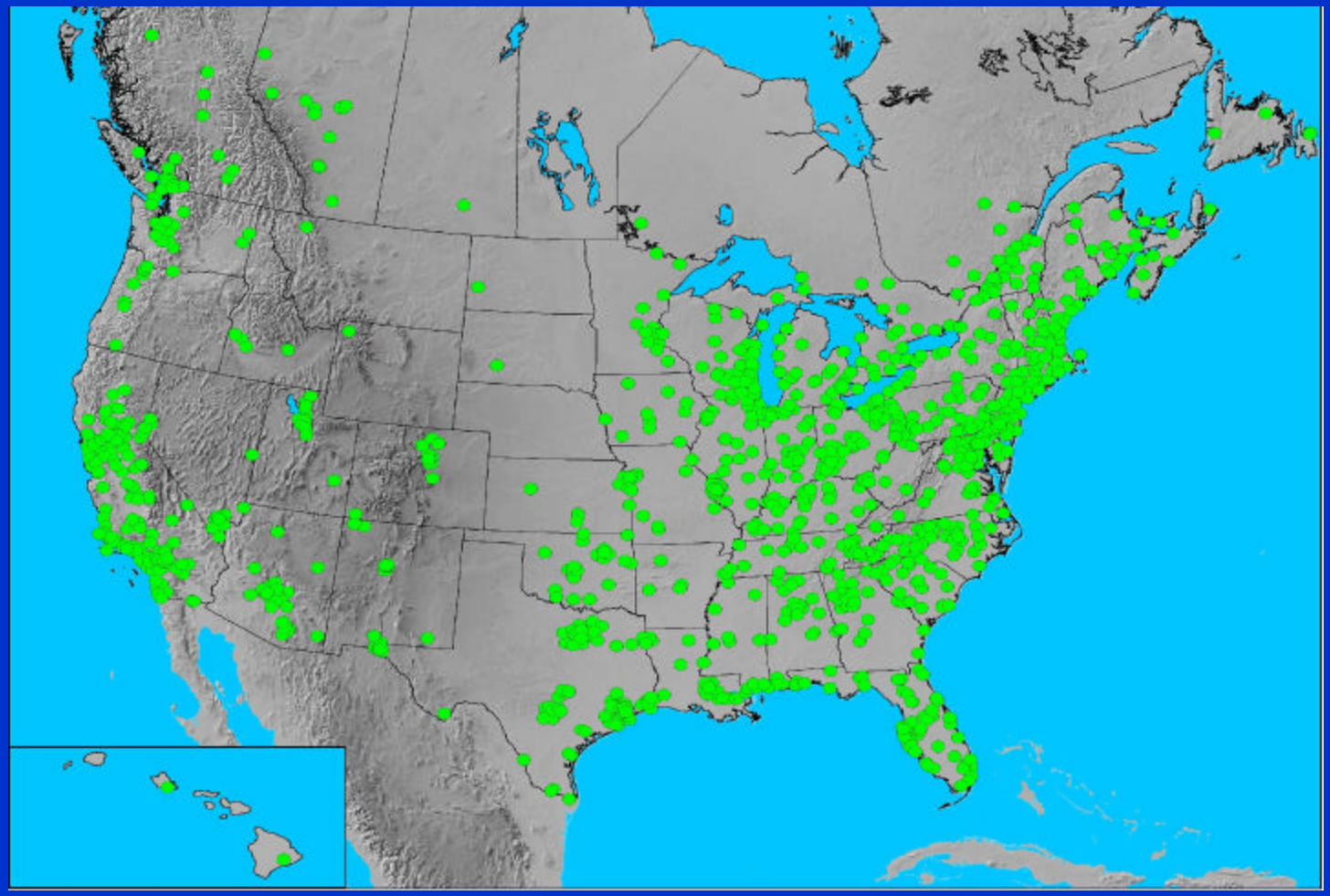


January 17, 2004



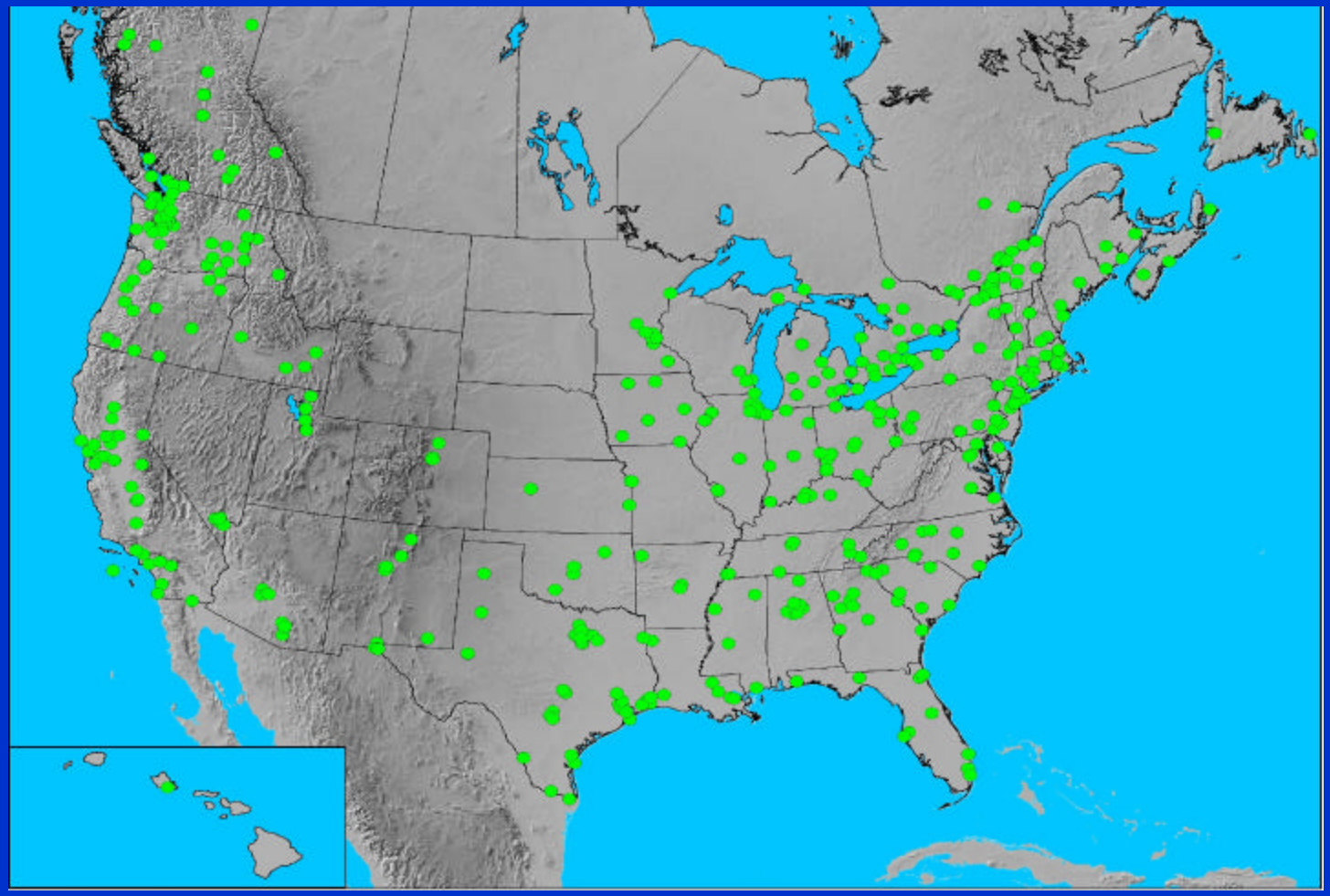
January 18, 2004

Nationwide Ozone Network Density



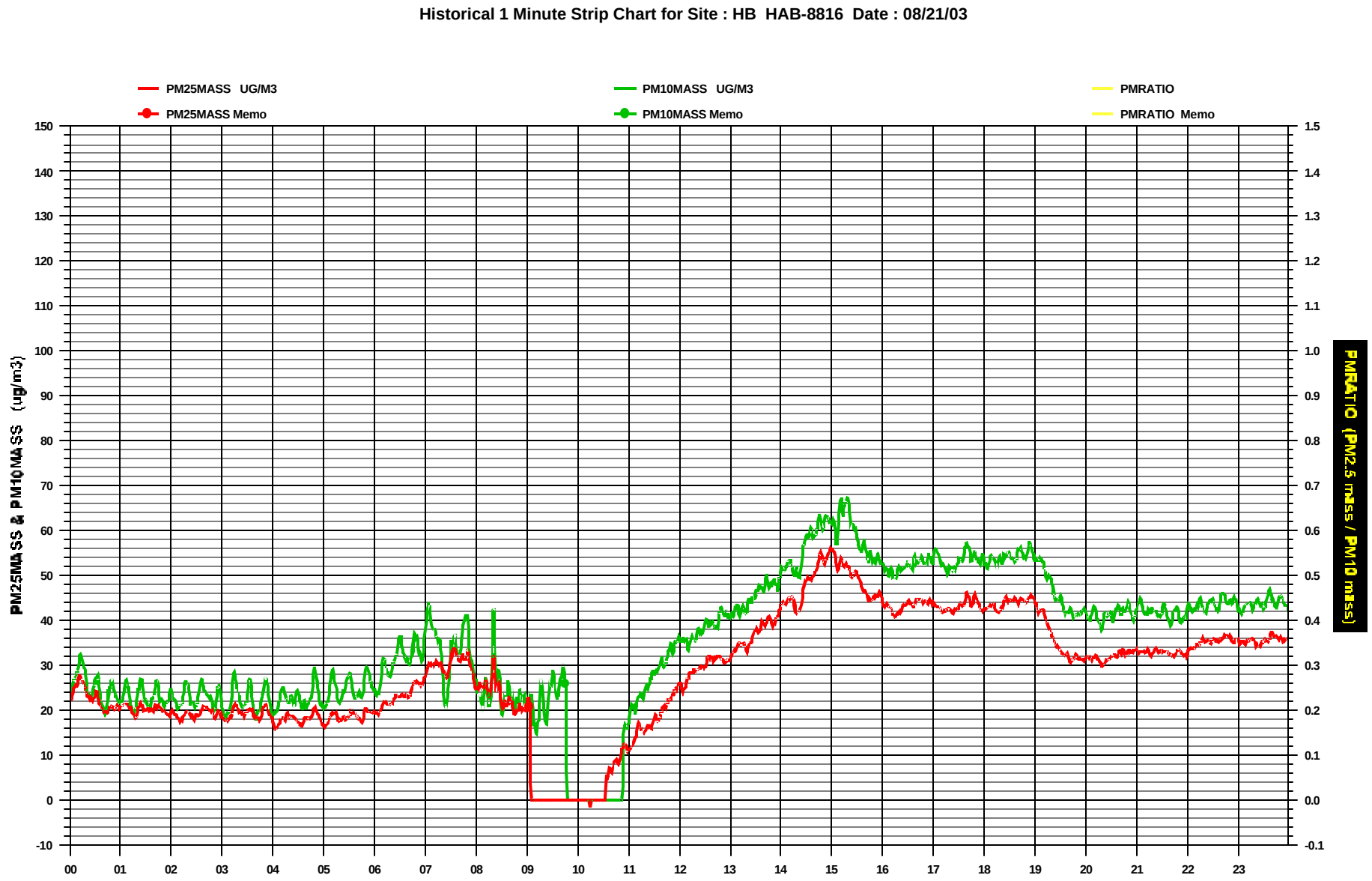
n= 1420*

Nationwide PM2.5 Network Density

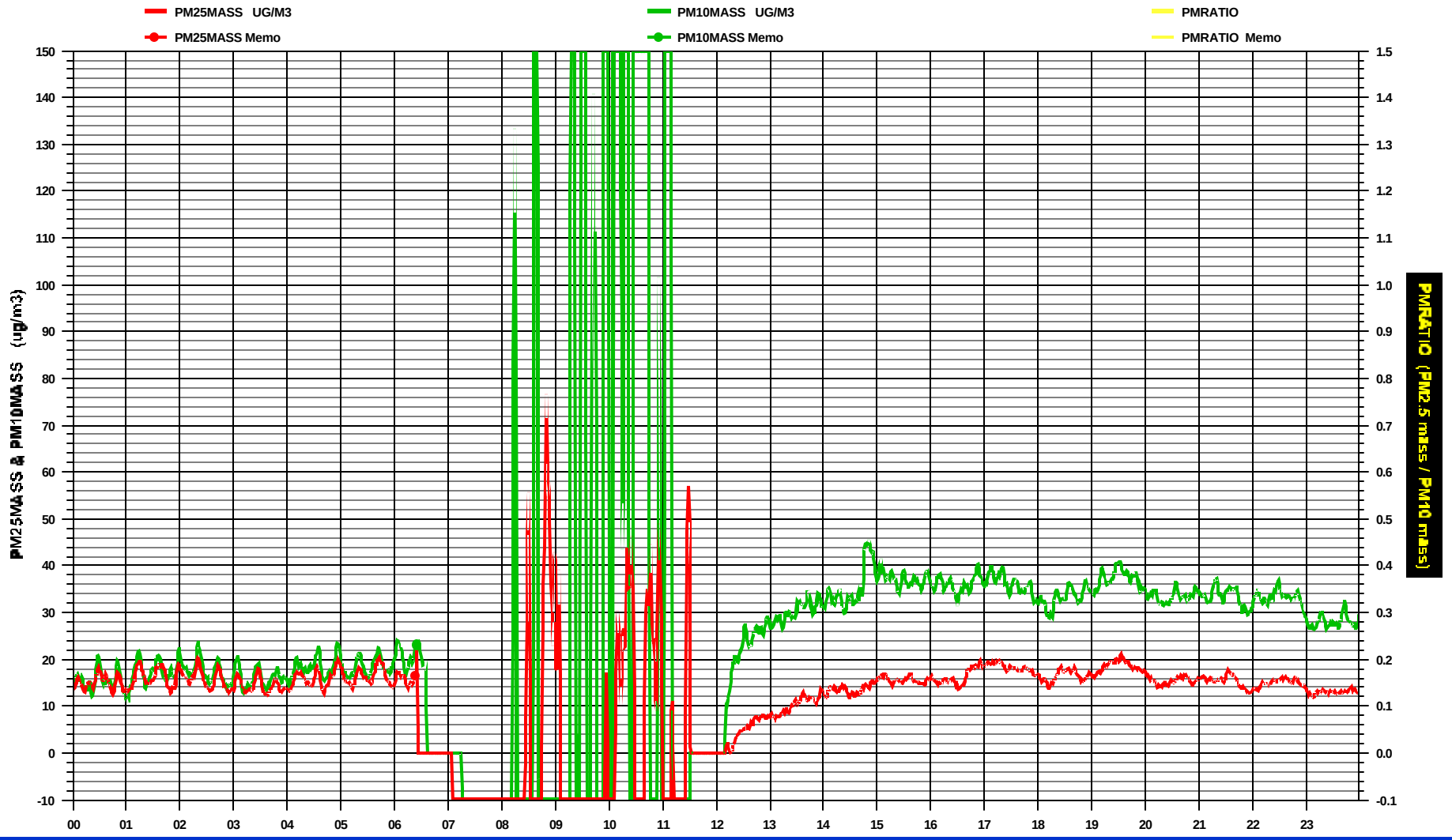


n= 415

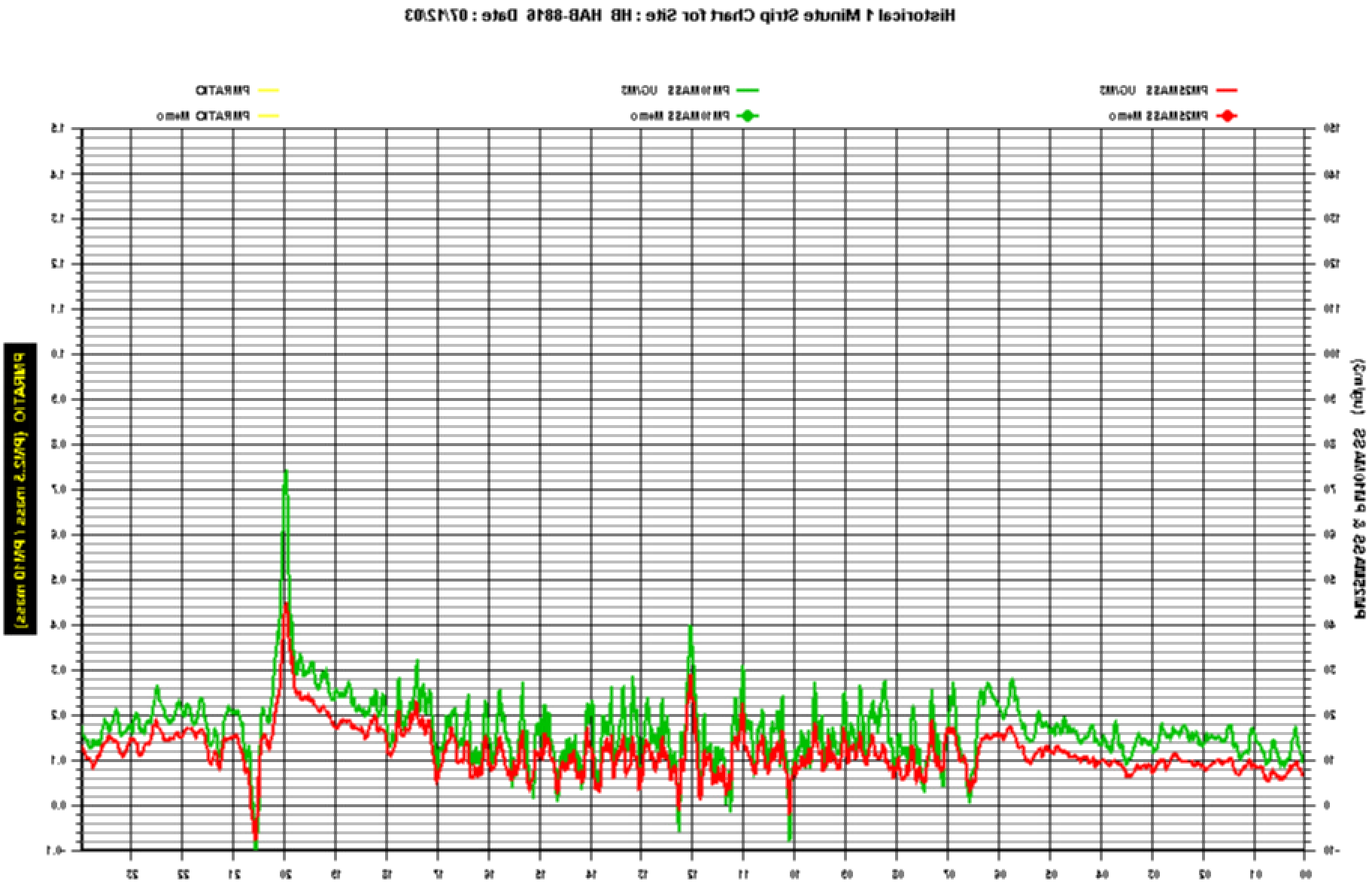
Maintenance



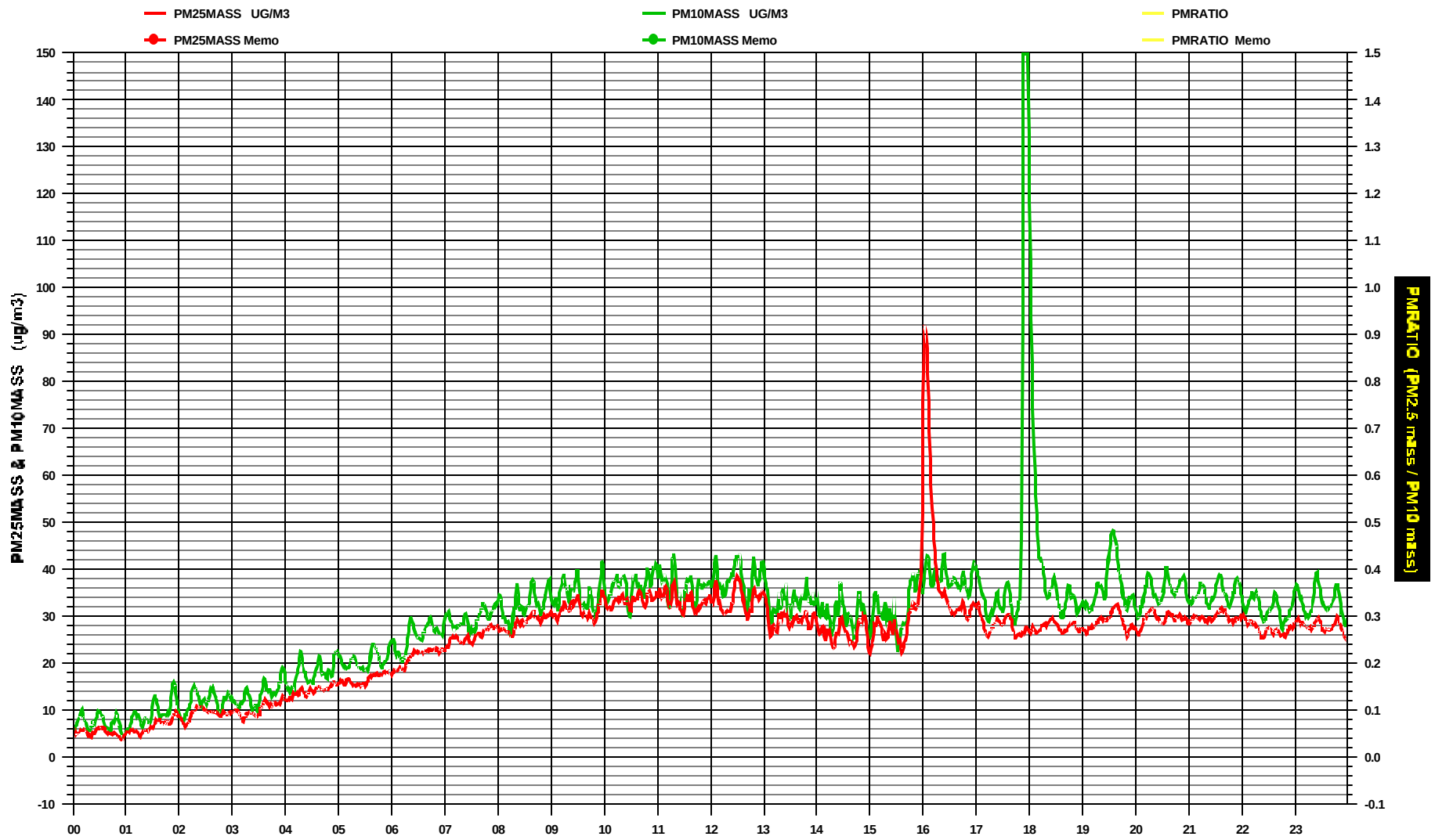
Instrument Errors



Weird Spike/Drop



Lawn Mower?


Historical 1 Minute Strip Chart for Site : HB HAB-8816 Date : 09/14/03
PM25MASS UG/M3
PM25MASS Memo
PM10MASS UG/M3
PM10MASS Memo
PMRATIO
PMRATIO Memo
PM25MASS & PM10MASS (ug/m3)
PMRATIO (PM2.5 mass / PM10 mass)
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
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1.3
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1.0
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0.8
0.7
0.6
0.5
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Health Messages

Air Quality Index (AQI): Ozone

Index Values	Levels of Health Concern	Cautionary Statements
0 - 50	Good	None
51 - 100*	Moderate	Unusually sensitive people should consider reducing prolonged or heavy exertion outdoors.
101 - 150	Unhealthy for Sensitive Groups	Active children and adults, and people with lung disease, such as asthma, should reduce prolonged or heavy exertion outdoors.
151 - 200	Unhealthy	Active children and adults, and people with lung disease, such as asthma, should avoid prolonged or heavy exertion outdoors. Everyone else, especially children, should reduce prolonged or heavy exertion outdoors.
201 - 300	Very Unhealthy	Active children and adults, and people with lung disease, such as asthma, should avoid all outdoor exertion. Everyone else, especially children, should avoid prolonged or heavy exertion outdoors.
301 - 500	Hazardous	Everyone should avoid all physical activity outdoors.

*An AQI of 100 for ozone corresponds to an ozone level of 0.08 parts per million (averaged over 8 hours).

Air Quality Index (AQI): Particle Pollution

Index Values	Levels of Health Concern	Cautionary Statements
0 - 50	Good	None
51 - 100*	Moderate	Unusually sensitive people should consider reducing prolonged or heavy exertion.
101 - 150	Unhealthy for Sensitive Groups	People with heart or lung disease, older adults, and children should reduce prolonged or heavy exertion.
151 - 200	Unhealthy	People with heart or lung disease, older adults, and children should avoid prolonged or heavy exertion. Everyone else should reduce prolonged or heavy exertion.
201 - 300	Very Unhealthy	People with heart or lung disease, older adults, and children should avoid all physical activity outdoors. Everyone else should avoid prolonged or heavy exertion.
301 - 500	Hazardous	People with heart or lung disease, older adults, and children should remain indoors and keep activity levels low. Everyone else should avoid all physical activity outdoors.

*An AQI of 100 for particles up to 2.5 micrometers in diameter corresponds to a level of 40 micrograms per cubic meter (averaged over 24 hours). An AQI of 100 for particles up to 10 micrometers in diameter corresponds to a level of 150 micrograms per cubic meter (averaged over 24 hours).

Forecasts

Bakersfield, CA
Air Quality Forecast
for Wednesday, 07
Jan 2004
PM2.5 - Unhealthy for Sensitive Groups